

# SOIL AND WATER RESOURCES

Testimony of Cheryl Closson, P.G.

## SUMMARY OF CONCLUSIONS

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This section of the Staff Assessment analyzes the potential effects on soil and water resources that would occur from construction and operation of the proposed Orange Grove Project (OGP). Based on its assessment of the proposed OGP, staff has reached the following conclusions:

- Potential adverse impacts caused by soil erosion and storm water flows during construction and operation of the OGP would be mitigated by implementation of Best Management Practices in accordance with the required federal Construction and Industrial Activity Storm Water Pollution Prevention Plans; the county Storm Water Management Plan; and the Drainage, Erosion, and Sedimentation Control Plan, as proposed in Conditions of Certification SOIL & WATER-2, 3, 5 and 7.
- The main project facility would be constructed outside the designated 100-year floodplain and would not exacerbate flood conditions in the vicinity of the project. In addition, while sections of the gas pipeline would be located within the 100-year floodplain, the underground gas pipeline and associated metering station would not impede or redirect flood flows or exacerbate flood conditions in the area.
- The OGP's proposed water use would not result in significant adverse impacts on water resources and water quality with adoption of staff's proposed conditions of certification.
- Potential impacts to surface or groundwater quality from industrial or sanitary wastewaters generated by the OGP would be mitigated to a less than significant level through reuse onsite of industrial process wastewaters, proper management and disposal of oily wastewaters not suitable for reuse, and compliance with established septic system construction and use requirements.
- The proposed project would comply with applicable federal, state, and local laws, ordinances, regulations, and standards with adoption and implementation of staff's proposed conditions of certification.
- The OGP would not result in any unmitigated cumulatively significant adverse impacts to soil or water resources with adoption of staff's proposed conditions of certification.

## INTRODUCTION

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This section analyzes potential impacts to soil and water resources from the construction and operation of the OGP. The analysis specifically focuses on the potential for the project to cause impacts in the following areas:

- Whether construction or operation would lead to accelerated wind or water erosion and sedimentation.
- Whether the project would exacerbate flood conditions in the vicinity of the project.

- Whether the project's water use would cause a substantial, or potentially substantial, adverse change in the quantity or quality of groundwater or surface water.
- Whether project construction or operation would lead to degradation of surface or groundwater quality.
- Whether the project would comply with all applicable laws, ordinances, regulations and standards (LORS).

Where the potential for significant adverse impacts or inconsistency with LORS is identified, staff has proposed mitigation measures and/or conditions of certification to ensure consistency or reduce any potentially significant impacts to a level of insignificance. A list of acronyms used in this section is provided in Appendix A at the end of this section.

## **LAWS, ORDINANCES, REGULATIONS, AND STANDARDS**

The following federal, state, and local environmental laws, ordinances, regulations, and standards have been identified for the OGP. Compliance with LORS ensures the most appropriate use and management of both soil and water resources. The requirements of these LORS are specifically intended to protect human health and the environment. The potential for project compliance with these LORS is a major component of staff's analysis.

**Soil and Water Table 1**  
**Laws, Ordinances, Regulations, and Standards (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>Federal</b>	
Title 33, United States Code (U.S.C.), section 1251 et seq. — Federal Water Pollution Control Act (commonly called the Clean Water Act)	<p>The Clean Water Act (CWA) established a broad national program for protecting water quality and regulating discharges of waste and pollutants into waters of the United States. It provides authority for establishment of water quality standards and waste discharge limits for point source discharges (such as those from industrial facilities, sewage treatment plants, and storm water). The act also prohibits discharges of pollutants without a permit or other authorization and allows authorized states to implement provisions of the act in lieu of the United States Environmental Protection Agency (U.S. EPA). Key CWA provisions include:</p> <ul style="list-style-type: none"> <li>• Section 401 - Water Quality Certification requirement for federally permitted activities (such as construction) that may result in discharges to surface waters and wetlands.</li> <li>• Section 402 - National Pollutant Discharge Elimination System (NPDES) permit program for point source discharges (including storm water).</li> <li>• Section 404 – Permit program addressing discharges of dredge or fill materials into surface waters and wetlands. This section is implemented by the United States Army Corp of Engineers (U.S. ACE).</li> </ul>

Applicable LORS	Description
Title 42, U.S.C., section 6901, et seq. — Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al)	The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA), established requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The law seeks to protect human health and the environment (including surface and groundwater) from improper management and disposal of waste and associated contaminants.
<b>State</b>	
California Constitution, Article 10, section 2, and California Water Code (CWC), section 100	These laws require that the water resources of the state be put to beneficial use to the fullest extent possible and that the waste, unreasonable use, or unreasonable method of use of water be prevented. The laws also require that conservation of such water be exercised with a view to the reasonable and beneficial use of the water in the interest of the people and for the public welfare.
CWC, Division 7, section 13000 et seq. — Porter-Cologne Water Quality Control Act	The Porter-Cologne Water Quality Control Act (Porter-Cologne) was established to protect the water quality and beneficial uses of waters of the state. The law gives broad authority to the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) to establish water quality standards and waste discharge requirements, issue permits, and implement provisions of the federal Clean Water Act. Under Porter-Cologne, “waters of the state” include both surface and groundwaters.
CWC, section 13550	This section of Porter-Cologne establishes that the use of potable domestic water for non-potable uses (including industrial use) is a waste or an unreasonable use of the water if recycled water is available and meets the following conditions: the quality and quantity of the reclaimed water are suitable for the use; the cost is reasonable; the use is not detrimental to public health; and the use will not impact downstream users or biological resources.
CWC, section 13552.8	This section of Porter-Cologne allows any public agency to require the use of reclaimed water in cooling towers if reclaimed water is available and meets the requirements set forth in CWC section 13550; if there are no adverse impacts to any existing water right; and if appropriate mitigation or control is provided in the event that public exposure to cooling tower mist is possible.
Title 17, California Code of Regulations (CCR), Division 1, Chapter 5	This chapter of the CCR addresses the requirements for backflow prevention and cross connections of potable and non-potable water lines.
Title 22 , CCR, Division 4 — Environmental Health	The Environmental Health regulations address requirements for drinking water standards, water treatment and operator certification, and water recycling criteria (including tertiary treatment standards). The regulations are implemented by the California Department of Public Health (CDPH), formerly known as the California Department of Health Services.

Applicable LORS	Description
Title 23, CCR, Division 3 — SWRCB and RWQCBs	These regulations implement provisions of the CWC and the Porter-Cologne Water Quality Control Act. Among other things, the regulations address water rights, implementation of the federal Clean Water Act, discharges to land, underground tanks, and waste discharge requirements/NPDES permits.
SWRCB Water Quality Order No. 99-08-DWQ	The SWRCB regulates storm water discharges associated with construction projects to protect state waters. Under Order 99-08-DWQ, the SWRCB issued an NPDES General Permit No. CAS000002 for storm water discharges associated with construction activity affecting areas greater than or equal to one acre. Those subject to the order can qualify for the permit if they meet the criteria, prepare and implement an acceptable Storm Water Pollution Prevention Plan (SWPPP), and notify the SWRCB of planned construction with a Notice of Intent (NOI).
SWRCB Water Quality Order No. 97-03-DWQ	The SWRCB also regulates storm water discharges associated with the operation of certain industrial facilities. Order 97-03-DWQ established NPDES General Permit No. CAS000001 for storm water discharges from 10 general industrial facility categories, including steam electric generating facilities. As with the construction storm water general permit, facilities can qualify if they meet the criteria, prepare and implement an acceptable SWPPP, monitor and report as necessary, and submit an NOI to the SWRCB. Section E.5. of the General Permit also requires facility operators to comply with all local agency municipal storm water management programs developed to comply with NPDES permits issued to local agencies.
RWQCB, San Diego Region Order No. R9-2007-0001	The California Regional Water Quality Control Board (RWQCB), San Diego Region Order No. R9-2007-0001, issued on January 24, 2007, establishes NPDES Municipal Storm Water Permit No. CAS0108758 requirements for urban runoff in San Diego County. The county and city co-permittees are required to establish requirements within their jurisdictions to regulate discharges from municipal storm sewer systems into waters of the United States, as well as to develop and implement Urban Runoff Management Programs for the area. The San Diego County Watershed Protection Ordinance and Grading Ordinance have both been established and amended to be consistent with provisions of RWQCB Order No. R9-2007-001.
Warren-Alquist Act, Public Resources Code section 25500 et seq.	This law gives the California Energy Commission authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, section 25500). The Energy Commission must review power plant applications for certification to assess potential environmental and public health and safety impacts, potential measures to mitigate those impacts (Pub. Resources Code, section 25519), and compliance with applicable governmental laws and standards [Pub. Resources Code, section 25523(d)].

Applicable LORS	Description
<b>Local</b>	
San Diego County Code of Regulatory Ordinances, Title 6 -Health and Sanitation, Division 8 - Sewage and Refuse Disposal, Chapter 3 - Septic Tanks and Seepage Pits (section 68.301 et seq.)	This ordinance establishes the requirements and standards for the design, installation, and maintenance of onsite wastewater treatment systems (OWTS), including septic tanks, leach lines, and seepage pits. CWC section 13282 allows RWQCBs to authorize local public agencies to issue permits and regulate OWTS. The San Diego County Department of Environmental Health is authorized to regulate OWTS throughout the county.
San Diego County Code of Regulatory Ordinances, Title 6, Division 7 – Water and Water Supplies, Chapter 8 – Watershed Protection, Storm Water Management and Discharge Control (section 67.801 et seq.).	This ordinance establishes requirements for watershed protection, storm water management and discharge control, and grading to protect water resources and improve water quality in San Diego County. The ordinances have been adopted in conformance with the requirements of the municipal storm water permit issued to San Diego County by the RWQCB.
San Diego County Code of Regulatory Ordinances, Title 8 – Zoning and Land Use Regulations, Division 7 – Excavation and Grading, Clearing and Watercourses (section 87.101 et seq.).	This ordinance establishes requirements for grading or clearing of properties in San Diego County. The ordinance includes requirements for erosion control and maintenance of drainage structures and protective devices, and also requires compliance with federal and state permits and plans addressing storm water management.
<b>State Policies and Guidance</b>	
SWRCB Resolution No. 75-58 — Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted June 19, 1975).	This SWRCB policy specifically addresses the use of inland waters for power plant cooling. The policy states that fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. The policy establishes a general hierarchy for cooling water whereby the lowest quality water reasonably available is to be utilized for evaporative cooling processes. It also includes cooling water discharge prohibitions.
SWRCB Resolution No. 77-1	SWRCB No. 77-1 encourages and promotes reclaimed water use for non-potable purposes.
SWRCB Resolution 88-63 —Sources of Drinking Water Policy	This policy states that all surface and groundwaters of the state are considered to be suitable, or potentially suitable, for municipal or domestic water supply, and should be designated as such by the RWQCBs, with the exception of certain waters (such as contaminated sources or process wastewaters).
The 2003 California Energy Commission <i>Integrated Energy Policy Report (IEPR)</i>	The 2003 <i>IEPR</i> was developed and adopted pursuant to Public Resources Code sections 25301 and 25302. It includes a water and wastewater policy stating that the Energy Commission will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.” In addition, the policy states that the Energy Commission will also require that zero-liquid discharge technologies be used to manage project wastewater unless such technologies are shown to be “environmentally undesirable” or “economically unsound.”

## PROJECT DESCRIPTION AND SETTING

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As noted in the **PROJECT DESCRIPTION** section of this document, the proposed Orange Grove Project (OGP) would consist of the construction and operation of a 96-megawatt (MW) (net) simple cycle electrical generation facility in northern San Diego County, on State Route (SR) 76 near the community of Pala (about 0.1 mile north of the intersection of SR 76 and Pala Norte Road). The proposed facility would provide electricity to San Diego Gas and Electric Company (SDG&E) during peak electricity demand times. The proposed 8.3-acre project site, adjacent 5-acre construction laydown area, and sections of the gas pipeline and transmission connection would be located within a larger 202-acre property currently owned by SDG&E. This SDG&E property includes the former citrus grove, a storage/residence compound to the south of the project site, and the existing SDG&E Pala electrical substation to the southwest of the project site. Power from the facility would be transmitted to the grid via a 0.3-mile<sup>1</sup> underground electric transmission line to the SDG&E Pala Substation and a 2.4-mile underground natural gas pipeline would be constructed to provide gas from an existing SDG&E gas line to the west.

Equipment for the proposed generating facility would consist of two 50-MW General Electric (GE) LM6000PC SPRINT<sup>2</sup> combustion turbine generators (CTGs), each equipped with a water injection system to reduce nitrogen oxide (NOx) formation, and a selective catalytic reduction system to further control NOx and carbon monoxide (CO) emissions. The project would be designed to operate at a maximum of 6,400 hours per year (with each CTG operating 3,200 hours); however, the normal operation (expected case design) would likely have both CTGs operating 1,000 hours per year. In addition to the SPRINT intercooling system integrated into the engine, inlet air for the CTGs would be cooled using a chilled water system package chiller. The inlet air chiller system would use a three-cell cooling tower for evaporative cooling of the chiller condensers.

Along with the CTGs, the facility would include a trailer-mounted demineralized water treatment system, a reverse osmosis (RO) water treatment system, a 535,000 gallon raw water storage tank, a 414,000 gallon reclaimed water storage tank, a 100,000 gallon demineralized water storage tank, and a 40,000 gallon wastewater storage tank. A free-span bridge would be constructed over a jurisdictional drainage for access to the facility from the main entrance off of Pala Del Norte Road. Storm water runoff at the site would be managed via diversion ditches and a detention pond. A septic system and leach field would be constructed and utilized onsite for domestic use drains, toilets, and related sanitary wastes and wastewaters.

Sections of the project transmission line and gas pipeline route would be located in mountainous terrain and would also cross six jurisdictional drainages. About a half mile of the gas pipeline would be constructed in the mountainous terrain and would require use of rock trenching to dig the pipeline trench due to the shallow bedrock in the area. To avoid impacts to the six drainages, the OGP would employ horizontal directional

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<sup>1</sup> Note: Site acreages, distances, and linear feature lengths given are approximate measures.

<sup>2</sup> The SPRINT acronym stands for the GE spray-intercooled power boost technology that is integrated into the LM6000PC unit. The technology uses water injected into the engine's compressor section to cool the temperature of the compressor and increase output from the unit during warm or hot weather.

drilling (HDD) to run the transmission line and gas pipeline under the drainages to avoid impacts to waters of the United States and waters of the State. In addition, HDD will be used where the gas pipeline crosses SR 76 to avoid disruption and construction impacts on traffic flow.

The OGP proposes to use both potable water and tertiary-treated reclaimed water for plant process needs. Water use requirements at the maximum design level would be 62 acre-feet per year (AFY) of potable water and 38.7 AFY of reclaimed water. Expected case use requirements would be 21.1 AFY of potable water and 12.1 AFY of reclaimed water. Both water supplies would be provided by the Fallbrook Public Utility District (FPUD) and would be trucked to the facility from separate water pick-up stations to be constructed for the OGP. The potable water pickup station would be located on a 0.2-acre parcel, nine (9) miles from the main OGP facility site. The reclaimed water pickup station would be located on a 0.4-acre parcel, 15.6 miles from the main OGP facility site.

The construction and start-up testing phase of the OGP is estimated to take six (6) months. Once constructed, the plant would be capable of operating for at least 25 years. (OGE 2008a, pages 2-29 and 2-33.) However, as a peaking power plant, the applicant only expects to operate the facility about 60 days per year (OGE 2008a, page 1-5).

## **REGIONAL SETTING**

The proposed project is located in northern San Diego County, approximately 50 miles north of the city of San Diego. The project area lies in the western foothills of the Peninsular Ranges, a roughly north-south trending set of mountain ranges in southwestern California.

The region has a Mediterranean climate that is typified by mild winters and warm to hot, dry summers. Temperatures (in degrees Fahrenheit) average from the mid-40's to the low 70's in the winter and upper 50's to upper 80's or higher in the summer. Annual rainfall/precipitation in the coastal plains and inland foothills averages between 12 and 18 inches per year; while precipitation in the higher elevations of the Peninsular Range Mountains can average between 30 and 45 inches per year. The majority of this precipitation occurs between November and April.

The OGP site is located within the San Luis Rey Hydrologic Unit, which is an east-west trending watershed encompassing approximately 565 square miles. The San Luis Rey River is the watershed's major river. The San Luis Rey Valley groundwater basin underlies the river in the alluvial deposits of the valley and is recharged by infiltrating irrigation water and storm water flows captured by the river and its tributaries. As with the river, groundwater in the basin flows west toward the Pacific Ocean.

## **PROJECT SITE AND VICINITY DESCRIPTION**

The main project site is located on a southward sloping (approximately 10%) alluvial fan at an elevation of 360 to 440 above sea level. Immediately north of the site the ground slopes up to about 1,700 feet to a ridge that surrounds the site to the north, northeast, and west. The site is located between two north-south seasonal, moderately incised

drainages that drain storm water from the small watershed around and above the site. The San Luis Rey River is located to the south of the main project site and runs parallel to and south of SR 76.

## **Soils**

Surface soils at the main project site, along the gas and transmission linear, and at the water pick up stations generally consist of fine to coarse sandy loams, sand, and loams developed mainly from local plutonic igneous bedrock (i.e., granodiorite, tonalite, and gabbro). The main soil units and unit characteristics are listed below in **Soil and Water Table 2**.

**Soil and Water Table 2**  
**Main Soil Types Potentially Affected and Characteristics**

Primary Soil Unit Name and Composition	Slope Class (%)	Erosion Factors <sup>1</sup>		Erosion Hazard	Permeability	Drainage
		K	T			
Las Posas stony fine sandy loam (LrE) – main project site, construction laydown, gas pipeline, and transmission interconnection.	9–30%	0.24	3	Moderate to High	Moderately Slow	Well Drained
Steep gullied land (StG) – main project site, gas pipeline, and transmission line connection.	N/A	N/A	N/A	Severe	N/A	N/A
Las Posas stony fine sandy loam (LrG) – gas pipeline.	30-65%	0.24	3	High to Very High	Moderately Slow	Well Drained
Cieneba very rocky coarse sandy loam (CmrG) – gas pipeline.	30-75%	0.20	2	High to Very High	Moderate	Well Drained
Tujunga sand (TuB) – gas pipeline.	0-5%	0.15 - 0.17	5	Slight	Very Rapid	Excessively Drained
Visalia sandy loam (VaA) – gas pipeline.	0-2%	0.17 - 0.49	5	Slight	Moderately Rapid	Moderately Well Drained
Riverwash (Rm) (sand, gravels, and cobbles) – gas pipeline	N/A	0.05	N/A	Severe	Rapid	Excessively Drained
Cieneba coarse sandy loam (CID2) – reclaimed water station.	5-15%	.20	2	Slight to Moderate	Rapid	Excessively Drained
Fallbrook sandy loam (FaB) – reclaimed water pickup station.	2-5%	0.20 - 0.28	4	Slight	Moderate	Well Drained
Vista coarse sandy loam (VsC) – reclaimed water pickup station.	5-9%	0.24 - 0.28	3	Slight to Moderate	Moderately Rapid	Well Drained
Wyman loam (WmC) – fresh water pickup station.	5-9%	0.24	5	Slight to Moderate	Moderately Slow	Well Drained
<p>1. K is a measure of relative susceptibility to sheet and rill erosion by water. The measure ranges from 0.02 to 0.69, with lower values representing a lower susceptibility to erosion. T represents soil loss tolerance, defined as the maximum amount of erosion at which the quality of the soil as a medium for plant growth can be maintained. Values range from 1 to 5 (tons per acre per year), with 5 representing soils less sensitive to degradation. (OGE2008a, Table 6.4-1)</p> <p>N/A = not available/not reported.</p> <p>Sources: OGE 2008a; and Natural Resources Conservation Service (NRCS) Web Soil Survey ,&lt;websoilsurvey.nrcs.usda.gov&gt;.</p>						



The applicant reports that the Soil Conservation Service descriptions of the Las Posas sandy loam series indicate that the shrink-swell potential for this soil is high. However, results of geotechnical testing conducted for the site indicate that the site soils do not appear to have a high enough expansive clay content to require special engineering measures (OGE 2008a, page 6.3-7).

Topsoil at the main project site is generally 12 to 18 inches deep and is underlain by weathered bedrock and alluvial fan deposits (fanglomerate) (OGE 2008a, Appendix 6.3 A.2).

### **Surface Waters and Flood Plain Designation**

The main surface water body in the project area is the San Luis Rey River, located to the south of SR 76. The river generally runs from east to west and ultimately discharges into the Pacific Ocean near the city of Oceanside. The San Luis Rey River is listed as a Clean Water Act (CWA) section 303(d) impaired water body for chloride and total dissolved solids. Near the project site the river was diverted into a diked channel 0.5 miles south of SR 76 to accommodate aggregate mining in the river bed. After mining operations stopped, several large ponds developed in the old mining pits due to groundwater seepage where excavations reached below the water table. In addition to the river, the project area includes several seasonal/ephemeral drainages that transport surface water flows during rain events in the area. While these drainages are usually dry during summer, they are considered to be both waters of the United States and waters of the State.

The main project site and adjacent construction laydown area are located outside the 100-year flood plain, on an old alluvial fan that lies between two drainages. These drainages collect storm water runoff from a small upstream watershed and discharge southward into culverts that drain to the south of SR 76 and ultimately discharge to the San Luis Rey River. The western portion of the gas pipeline route is located within the 100-year flood plain, but will not contain any structures that would impede or redirect flood flows.

### **Groundwater**

Groundwater beneath the main project site is expected to occur between 50 and 100 feet below the ground surface, depending on the location. However, localized areas of shallower groundwater may develop during periods of heavy rain and saturated ground conditions (OGE 2008a, Appendix 6.3-A.2). Groundwater along the western sections of the gas pipeline may be encountered at much shallower depths due to lower elevation and proximity to the river.

Groundwater quality in the area is characterized by relatively high total dissolved solids (TDS), chloride, and sulfate concentrations. TDS concentrations average between 600 and 1,200 milligrams per liter (mg/L). The closest water wells to the site are located south of SR 76 near the former mining operations. (OGE 2008a, section 6.5).

### **Project Water Supply**

The OGP proposes to use both potable water and recycled water for plant industrial uses. While the OGP is located within the boundaries of the Rainbow Municipal Water

District (RMWD), the district does not offer recycled water and the nearest RMWD potable water distribution line is several miles from the main project site. Consequently, water supplies for project operations would be provided by the FPUD and would be trucked to the site from pickup locations in Fallbrook. Water for evaporative cooling of the inlet air chiller would come from tertiary-treated recycled water and would be stored onsite in a 414,000 gallon recycled water storage tank. Potable water for the water demineralizer system, fire protection water, sanitary system uses, and landscape watering would also be obtained from FPUD and transported to the facility by truck. This water would be stored onsite in the 535,000 gallon raw water/fire protection water storage tank. Bottled water will be provided for drinking water supplies.

Summaries of the OGP's proposed water use are provided below in **Soil and Water Tables 3 and 4**.

**Soil and Water Table 3**  
**Proposed OGP Operation Potable Water Use**

Water Use	Average Use Rate <sup>1</sup> (gpm)	Instantaneous Use Rate <sup>2</sup> (gpm)	Annual Use <sup>3</sup> (AFY)
<b>Maximum/Design Case<sup>4</sup></b>			
Demineralized Water for SPRINT and NOx control	41.6 (12.1 for SPRINT and 29.5 for NOx)	114.0	67.2
Sanitary Systems and Facility Wash Down (Intermittent)	0.15	--	0.24
Landscape Drip	1.4	--	2.3
Recovered Cooling Tower Blowdown/Chiller Coils Condensation -- RO Concentrate Recycled to Raw Water Tank (shown as negative value)	-4.7	-13.0	-7.7
<b>Total - Max Design Case</b>	<b>38.5 gpm</b>	<b>101 gpm</b>	<b>62.0 AFY (18 for SPRINT and 44 for NOx)</b>
<b>Expected Use Case<sup>5</sup></b>			
Demineralized Water for SPRINT and NOx control	13.0	114.0	21.0
Sanitary Systems and Facility Wash Down (Intermittent)	0.15	--	0.24
Landscape Drip	1.4	--	2.3
Recovered Cooling Tower Blowdown/Chiller Coils Condensation -- RO Concentrate Recycled to Raw Water Tank (shown as negative value)	-1.5	-13.0	-2.4
<b>Total -- Expected Use Case</b>	<b>--</b>	<b>101 gpm</b>	<b>21.1 AFY (6.1 for SPRINT and 15 for NOx)</b>
<sup>1</sup> Annual use rate converted to gallons per minute (gpm) (Instantaneous rate x 3200 operating hours/ 8760 hours) <sup>2</sup> Instantaneous use rate with ongoing operations at the summer design condition. <sup>3</sup> Average annual use based on 3,200 hours of two CTGs operating at summer design conditions (6,400 total hours). <sup>4</sup> Max design case based on both units operating at full load at summer design conditions. <sup>5</sup> Expected use case based on both units operating at full load at summer design conditions for a total of 1,000 hours of annual plant operation.			

Source: OGE 2008a, section 2.0, Table 2.6-1a.

**Soil and Water Table 4**  
**Proposed OGP Operation Reclaimed Water Use**

Water Use	Average Use Rate <sup>1</sup> (gpm)	Instantaneous Use Rate <sup>2</sup> (gpm)	Annual Use <sup>3</sup> (AFY)
<b>Maximum/Design Case<sup>4</sup></b>			
Inlet Air Chiller Cooling System	38.0	104	61.3
Recovered Cooling Tower Blowdown/Chiller Coils Condensation -- RO Permeate Recycled to Recycled Water Tank (shown as negative value)	-14.0	-38.3	-22.6
<b>Total - Max Design Case</b>	<b>24.5 gpm</b>	<b>65.7 gpm</b>	<b>38.7 AFY</b>
<b>Expected Use Case<sup>5</sup></b>			
Inlet Air Chiller Cooling System	11.8	104	19.3
Recovered Cooling Tower Blowdown/Chiller Coils Condensation -- RO Permeate Recycled to Recycled Water Tank (shown as negative value)	-4.4	-38.3	-7.1
<b>Total – Expected Use Case</b>	<b>7.4 gpm</b>	<b>65.7 gpm</b>	<b>12.1 AFY</b>
<sup>1</sup> Annual use rate converted to gallons per minute (Instantaneous rate x 3200 operating hours/ 8760 hours) <sup>2</sup> Instantaneous use rate with ongoing operations at the summer design condition. <sup>3</sup> Average annual use based on 3,200 hours of two CTGs operating at summer design conditions (6,400 total hours). <sup>4</sup> Max design case based on both units operating at full load at summer design conditions. <sup>5</sup> Expected use case based on both units operating at full load at summer design conditions for a total of 1,000 hours of annual plant operation.			

Source: OGE 2008a, section 2.0, Table 2.6-1b.

Water quality data for the FPUD recycled water and potable water supplies are presented below in **Soil and Water Table 5**.

**Soil and Water Table 5**  
**Water Quality for Proposed Water Sources**

Parameter (mg/L)	FPUD Recycled Water	FPUD Potable Water
Alkalinity (total)	--	98
Boron	0.392	140
Calcium	65.2	53
Chloride	157	92
Fluoride	0.42	0.20
Iron	0.041	--
Magnesium	26.3	22
Nitrate	8.4	ND
pH	--	8.1
Potassium	17	4.2
Sodium	131	83
Sulfate	208	169
Total dissolved solids (TDS)	776	495

Source: OGE 2008a, Tables 6.5-1; and FPUD 2008 Consumer Confidence Report.

In addition to project operational water supply requirements, the OGP would require approximately 4.8 acre-feet of water for construction uses as shown below in **Soil and Water Table 6**.

**Soil and Water Table 6**  
**Construction Water Use Requirements**

<b>Construction Activity</b>	<b>Peak Water Use In gallons per day (gpd)</b>	<b>Total Water Use In gallons (gal)</b>
Mass grading (including pipeline trenching and backfill)	15,000	690,000
Horizontal directional drilling (HDD)	7,100	219,000
Foundations	4,200	644,000
<b>TOTAL</b>		<b>1,553,000 gal (4.8 acre-feet)</b>

Source: TRC 2008e, Data Response #58.

### **Wastewater**

Project sanitary wastes/wastewater would be generated from domestic drains and two restrooms located in the facility's Service Building. A public sewer system is currently not available in the project area, so these wastes would be discharged to an onsite sanitary waste septic system comprised of a septic tank and leach field (OGE 2008a, Appendix 6.5-H).

Plant process wastewater (such as blowdown from the chiller system and non-oily wastewaters) would be collected and recycled onsite using the RO system.

Wastewaters not suitable for recycling through the RO system (such turbine wash water and oily water from drains in the turbine and gas compressor areas and service building floor) would be collected, temporarily stored onsite, and then transported offsite for appropriate treatment, reuse and/or disposal. Approximately 320 gallons per month of this oily wastewater would be generated from turbine wash and plant drains (TRC 2008a, Data Response #61, 62, and 63).

### **Existing Site Conditions**

A Phase I Environmental Site Assessment (ESA) was conducted in June 2008 by TRC Solutions, Inc. (TRC) for the proposed OGP (OGE 2008a, Appendix 6.14-A). This report addressed the main 8.3-acre facility site and surrounding vicinity, but did not fully address the SDG&E storage area (to be used during project construction) or properties along the proposed gas pipeline route. In response to Data Request #68, the applicant submitted an additional Phase I ESA (TRC 2008e, Exhibit 68-1) that did assess the properties along the proposed gas pipeline but again excluded evaluation of the SDG&E storage area.

The Phase I ESAs submitted by the applicant did not identify any Recognized Environmental Conditions (RECs) associated with the main property site or the gas and transmission connection linear. However, the documents reported that the location and condition of the septic tank and leach field associated with the SDG&E storage area residence is not known. The documents also cited previous Phase I ESAs conducted for the SDG&E property that identified the unknown condition of the septic system as a

potential REC and recommended that the location and condition of the septic tank be identified (TRC 2008e, pages 4-7 and 5-4).

## **ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION**

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This section provides a discussion of the potential direct, indirect, and cumulative impacts to soil and water resources that may result from construction, operation, and maintenance of the proposed OGP. While all projects will likely have impacts, the goal is to limit any adverse impacts to an insignificant or acceptable level, or to avoid them altogether, if possible. Staff's analysis of potential impacts consists of a brief description of the potential impact, an analysis of the relevant facts, and application of the threshold criteria for significance to the facts. Mitigation measures may be necessary to reduce potentially significant impacts to a level of insignificance. If mitigation is warranted, staff provides a summary of the applicant's proposed mitigation and a discussion of the adequacy of the proposed mitigation. Where necessary, staff presents additional or alternative mitigation measures or recommends specific conditions of certification related to a potential impact and any required mitigation measures.

### **METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE**

Staff evaluated the potential impacts to soil and water resources including the effects of construction and operation activities that could result in erosion of soils, the deposition of sediments into surface waters or the contamination of either groundwater or surface water. Staff also evaluated the potential of the project's proposed water use to cause a significant depletion or degradation of local and regional water resources

To evaluate if significant impacts to soil or water resources would occur, staff assessed:

- Whether construction or operation would lead to accelerated wind or water erosion and sedimentation.
- Whether the project would exacerbate flood conditions in the vicinity of the project.
- Whether the project's water use would cause a substantial, or potentially substantial, adverse change in the quantity or quality of groundwater or surface water.
- Whether project construction or operation would lead to degradation of surface or groundwater quality.
- Whether the project would comply with all applicable LORS.

These criteria are based on the California Environmental Quality Act (CEQA) Guidelines and performance standards (CCR 2008). The threshold of significance for project impacts is based on the ability of the project to be built and operated without violating applicable erosion, sedimentation, flood, surface or groundwater quality, water supply, or wastewater discharge standards. The federal, state, and local LORS and policies presented in **Soil and Water Table 1** represent the applicable standards used for the OGP analysis. These LORS support a comprehensive regulatory system, with adopted standards and established practices designed to prevent or minimize adverse impacts to soil and water resources. For those impacts that exceed standards or result in a significant adverse impact, conditions of certification may be necessary to ensure compliance with standards or reduce the impacts to a less than significant level.

Staff's analysis, determination of potential impacts, and evaluation of appropriate mitigation measures relies on estimates and information provided by the applicant regarding the construction and operation of the OGP. Applicable scientific, technical, and LORS/policy-related literature and expert opinion was also consulted in the development of staff's analysis.

## **DIRECT/INDIRECT IMPACTS**

The direct and indirect impacts and mitigation discussion presented below is divided into a discussion of impacts related to project construction activities and a discussion of impacts related to facility operation.

### **Construction Impacts**

The construction phase of OGP is expected to take approximately six (6) months and will include site grading, linear trenching, facility construction, and final site stabilization prior to operation. In general, construction activities can lead to adverse impacts to soil and water resources if the activities are not properly mitigated. Potential impacts to soils during construction are possible due to soil erosion or release of hazardous substances. Increased storm water runoff from cleared, graded, and compacted construction sites can increase the potential for off-site flooding. In addition, local water bodies and water quality can be impacted by increased sediment and contaminant loads in storm water discharged from construction sites. Potential construction-related impacts to soil, storm water, and water quality, including the applicant's proposed mitigation measures and staff's proposed conditions of certification, are discussed below.

### **Existing Site Conditions**

The OGP proposes to use parts of the SDG&E storage area to locate construction trailers and offices. As noted in the **PROJECT SITE AND VICINITY DESCRIPTION** section above, the Phase I ESA documents submitted for the OGP reported that the location and condition of the septic tank and leach field associated with the SDG&E storage area residence is not known. The documents also cited previous Phase I ESAs conducted for the SDG&E property that identified the unknown condition of the septic system as a potential REC and recommended that the location and condition of the septic tank be identified (TRC 2008e, pages 4-7 and 5-4).

Staff is concerned that, by not knowing the location of the septic tank and leach field, OGP construction activities may inadvertently damage the septic system (by driving over or heavily weighting the ground immediately above the septic tank and leach field) and thereby cause or contribute to potential soil and groundwater contamination. To prevent project construction-related damage to the storage area septic system, the applicant has reported that SDG&E, as the storage area owner, has agreed to abandon the septic system in place prior to the start of OGP construction and to block off any surface areas overlying the system that may present safety issues during construction (TRC 2008g). To help ensure that OGP construction activities do not adversely impact soil or groundwater by damaging the storage area septic system, staff propose Condition of Certification **SOIL & WATER-1**, requiring that, prior to OGP construction, the project owner provide confirmation that all elements of the storage area septic system have been identified and clearly located, that the system septic tank has been properly closed, and that areas overlying the storage area septic system are clearly

flagged and blocked off during OGP construction where construction activities may present safety issues or damage septic system elements.

### **Soil Erosion Control and Storm Water Management**

Site grading and construction activities can expose and disturb the soil, leaving soil particles vulnerable to erosion by wind and water. Soil erosion from wind and water may cause a loss of topsoil and increased sedimentation of surface waters downstream. The magnitude, extent, and duration of these impacts depend on several factors, including the proximity of the site to surface water, the soils affected, and the method, duration, and time of year of activities. Prolonged or high intensity rain events during construction can result in increased site soil erosion and sediment discharges to nearby water bodies. In addition, high winds during grading and excavation activities can result in wind-borne erosion leading to increased particulate emissions that adversely impact air quality. Implementing appropriate erosion control measures will help conserve soil resources, maintain water quality, protect property from erosion damage, prevent accelerated soil loss, and protect air quality.

Construction of the OGP would require disturbance of approximately 36 acres of land, including 8.3 acres at the main facility site; 1.0 acres for site access; 2.2 acres for the site fire protection fuel modification zone; 5.0 acres at the site construction laydown area; 18.9 acres along the gas pipeline/linear facilities corridor, including staging areas and the gas metering station; 0.2 acres at the potable water pickup station; and 0.4 acres at the recycled water pickup station. Soils in the project areas are dominantly fine to coarse sandy loams with stones, cobbles and rocks common and are all generally well drained. Soils at the main project site and parts of the gas pipeline in the mountainous sections have a moderate to very high/severe erosion hazard. Whereas the soils along the western gas pipeline sections and the water pickup stations have erosion hazards that are slight to moderate.

The pre-construction gradient at the main project site is approximately 10%, sloping from north to south. Construction of the OGP would require grading of the main facility site to establish a pad with a gently sloping 1% grade. Cut/fill slopes surrounding the site would be established at a 3:1 horizontal to vertical slope. Excavation and fill requirements at the main site are expected to roughly balance out at 56,000 cubic yards each. However, some rock from construction of the gas pipeline may be used at the main site for crushed rock surfaces in lieu of imported rock. Excavations at the main project site and along the gas pipeline will require offsite disposal of approximately 650 cubic yards of rubble and concrete debris (TRC 2008e, Data Response #70).

Potential soil loss for the OGP main project site was analyzed by the applicant using the Revised Universal Soil Loss Equation (RUSLE) (OGE 2008a, Appendix 6.4-C). The RUSLE analysis uses site slope, soil erodibility, and erosion management factors to estimate the average annual soil loss from rainfall sheet and rill erosion and overland flow. The pre-development RUSLE value calculated for the main project site is approximately 1.43 tons of soil lost per acre per year. The post-development value was calculated to be 0.40 tons of soil lost per acre per year. These values indicate that construction of the proposed facility would potentially decrease erosion at the site by lessening the site slope and controlling sediment discharge through storm water management features and Best Management Practices (BMPs).



The Preliminary Draft Drainage, Erosion, and Sediment Control Plan (DESCP) submitted by the applicant as part of data response #57 (TRC 2008e, Exhibit 57-1) provides information on the BMPs proposed for mitigation of potential soil erosion and storm water runoff impacts associated with construction and operation of the OGP. BMPs proposed by the applicant and supported by staff include use of the following: silt fences, fiber rolls, gravel bag berms, sandbag barriers, storm drain inlet protection, sediment basins, and preservation of existing vegetation. Wind erosion BMPs include stabilized construction entrance/exit, water application, and stockpile management using silt fences and plastic covers to prevent wind dispersal of sediments from stockpiles. In addition, BMP controls would be implemented for activities such as equipment maintenance, waste management, and construction materials pollution control to prevent contamination of soil and storm water.

Construction of the gas pipeline along existing roads and right-of-ways in the mountainous terrain west of the main site will require rock trenching and additional post construction erosion control BMPs due to the shallow bedrock and steep terrain. A hydraulic excavator will be used to excavate solid rock and allow digging around and under boulders. Trench boxes and breakers (ditch plugs) would be used to stabilize the pipeline trench. Silt fences, sand bags, and gravel bag barriers would be used to control erosion during construction. Soil diversion berms would be used to control post-construction erosion in the mountainous areas after the pipeline trench is backfilled and compacted. Due to the steepness of the terrain, the berms will be approximately 2.5 feet high and will extend across the full width of the right-of-way to prevent water flow back onto the right-of-way. (TRC 2008e, Data Response #64.)

Soil erosion control and water quality BMPs will also be employed during bridge construction and HDD activities associated with linear construction around drainages to prevent impacts to waters of the State. BMPs will include silt fencing, fiber rolls and check dams, along with stockpile management, dewatering operations, liquids management, and contingencies for management of drilling fluids in the event of a “frac-out” or release of drilling fluids from the bore hole to the surface through fractures or conduits in the rock or overlying materials. A draft frac-out contingency plan for the HDD activities is provided as Attachment D to the Streambed Alteration Agreement submitted to the California Department of Fish and Game by the applicant on August 11, 2008 (TRC 2008i).

Staff concurs with the applicant’s proposed BMPs and also proposes the adoption of the following conditions of certification to ensure compliance with project grading, storm water management and erosion control LORS.

- **SOIL & WATER-2** requires the project owner to comply with all of the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated with Construction Activity, including the development and implementation of a construction Storm Water Pollution Prevention Plan (SWPPP).
- **SOIL & WATER-3** requires the project owner to develop and obtain Compliance Project Manager (CPM) approval for a site-specific final DESCP that addresses all project elements and ensures protection of water and soil resources for both the construction and operational phases of the project.

- **SOIL & WATER-4** requires the project owner to comply with all applicable requirements associated with the county of San Diego's grading ordinance and permit. Required items include submittal of complete grading plans and drawings, drainage and soil reports, and a Storm Water Management Plan (SWMP) prepared in conformance with the San Diego County Excavation and Grading, Clearing and Watercourses ordinance requirements.
- **SOIL & WATER-5** requires the project owner to comply with all applicable requirements of San Diego County Watershed Protection, Storm Water Management and Discharge Control, and Grading Ordinance (No. 9926) (also known as the Watershed Protection Ordinance).

Staff concludes that potential soil loss, erosion, and storm water impacts from project site grading and construction would be less than significant with implementation of all of the above conditions of certification.

### **Surface Waters and Hydrology**

A jurisdictional waters and wetland delineation report was prepared for the project site (OGE 2008a, Appendix 6.5-B) and six drainages and drainage tributaries were identified as potential waters of the United States and waters of the State. To avoid potential impacts to these jurisdictional waters, the project proposes to use a free-span bridge design for construction of the site entrance bridge over the drainage on the western edge of the main facility, and also use HDD for construction of the transmission line and gas pipeline under the drainages. The U.S. Army Corp of Engineers (U.S. ACE) has determined that a CWA section 404 dredge and fill permit would not be required for the project (OGE 2008d). Because the federal CWA section 404 permit would not be required, the project would also not require a CWA section 401 water quality certification. In addition, the San Diego RWQCB confirmed that Waste Discharge Requirements (WDRs) would also not be required for the HDD activities (CEC 2008q).

Site grading and construction would alter drainage patterns in the area by diverting storm water run-on from the north to flow around the site toward the existing drainage located to the west of the facility. Storm water on the facility site would be routed to a storm water detention basin to be constructed in the southeast portion of the project site. The storm water in the detention basin would then be discharged to culverts to the south, toward the San Luis Rey River. Because the site would discharge storm water runoff into a water of the United States, the project would be required to comply with the federal General NPDES Permit for Discharges of Storm Water Associated with Construction Activity, along with any local storm water management requirements established by San Diego County for compliance with the county's municipal storm water permit, per **SOIL & WATER-2 and 5**. The NPDES permits establish storm water effluent limitations, specify sampling, monitoring and reporting requirements, and require preparation and implementation of a SWPPP for all construction activities, including bridge construction and use of HDD for pipeline construction under drainages. The draft DESCP submitted by the applicant provides information on the applicant's proposed BMPs to address potential storm water runoff impacts associated with project construction activities. The applicant also provided preliminary information on the sizing of the permanent storm water detention basin that would be used during both construction and operation of the OGP facility (OGE 2008a, Appendix 6.5-A).

With implementation of proposed Conditions of Certification **SOIL & WATER-2, 3, 4, and 5**, staff believes that project construction activities would have a less than significant impact on surface waters and hydrology in the project area.

### **Water Resources and Supply**

It is anticipated that the peak daily construction water use would be around 15,000 gallons, and the project's total construction water use would be approximately 4.8 acre-feet (AF) over the 6-month construction period (TRC 2008e, Data Response #58). The applicant identified RMWD as the likely source of water for project construction needs. An email confirmation was received from RMWD stating that the district is willing to provide construction water to the project consistent with district rules and regulations (RMWD 2008b).

Given the relatively small volume of water needed during project construction, the availability of a sufficient supply of water from RMWD, and the water quality protection requirements that would be applied during project construction as part of the erosion control and storm water management requirements, staff does not anticipate any significant adverse impacts to area water supplies or surface or groundwater resources from project construction water use.

Although the applicant has identified RMWD as the likely source for construction water, they have stated that they do not intend to limit their construction contractors to procuring construction water only from RMWD. While staff anticipates no significant adverse impacts from use of construction water supplied by RMWD, staff has not analyzed the potential impacts that might be associated with use of water from sources other than RMWD. Staff is concerned that construction water obtained from sources other than the identified RMWD source may result in adverse impacts if the water is not obtained legally from appropriate, uncontaminated water sources. The applicant has stated that they are amenable to a condition of certification requiring that the sources of water used during construction be reported to the Energy Commission to assure that water is obtained from existing, legal supplies that will not result in new environmental impacts. Staff concurs with the applicant's proposed condition and recommends Condition of Certification **SOIL & WATER-6** requiring the project owner to report to the Energy Commission the source(s), volume, and providers of water procured for use during construction of the OGP.

### **Wastewater**

During project construction, sanitary wastes and wastewaters would be managed and collected in portable, self-contained chemical toilets. The portable toilets would be emptied at least weekly and the waste would be transported by a licensed hauler to an authorized sanitary sewer location or wastewater treatment facility for disposal (TRC 2008e, Data Response #57).

Other wastewaters generated during construction may include equipment wash down waters, groundwater from excavation dewatering, drilling muds/fluids, and storm water. Equipment wash down water would be contained and collected in designated areas, and then properly disposed of offsite. Excavation dewatering fluids would be contained in portable tanks and tested prior to offsite disposal. Proposed Conditions of

Certification **SOIL & WATER-2, 3, 4, and 5** would require all project construction wastewaters and storm water runoff to be managed to protect surface and groundwater in accordance with the requirements established by the NPDES General Construction Storm Water Permit and SWPPP, the DESCP, and the provisions of the San Diego County watershed protection and grading ordinances. Staff concludes that project construction wastewaters would result in a less than significant impact on soil and water resources and supplies if the project complies with LORS and the above conditions of certification are implemented.

## **Operation Impacts**

### **Soils**

After construction approximately one (1) acre of the 5.2 acres within the fencing of the main facility site would be covered by concrete, buildings or other impervious material; approximately 3.22 acres would be covered by gravel; and the rest would be landscaped (OGE 2008a, Appendix 6.5-A). The proposed gravel and landscape coverage would reduce any soil erosion impacts from operation of the facility to a less than significant level.

### **Surface Hydrology and Flooding**

The proposed OGP facility would be located outside the 100-year floodplain and would not exacerbate flood conditions in the vicinity of the project (OGE 2008a, section 6.5). The project would not be exposed to tsunamis or seiches given its location and distance from any large water bodies.

Offsite storm water from the north would be routed around the facility using a diversion channel and would be directed to the existing drainage on the west side of the facility. Storm water from the facility site would be managed by use of storm drains and a storm water detention basin. The drainage area for the facility site is estimated to be 5.2 acres and includes all areas within the fenced yard, the detention basin area, and the berm on the north side of the facility. Storm water runoff within the facility would be directed to six onsite storm drains that would then discharge into the detention basin. All storm drains and the detention basin would be designed to manage flows from a 100-year storm event, in compliance with the San Diego Watershed Protection Ordinance requirement. The detention basin would be approximately eleven feet deep and cover 0.5 acres at the site. The proposed detention basin is intended to reduce the project's post-development runoff to a rate that would not exceed pre-project peak runoff/discharge rate, and therefore not increase flood risks downstream from the project site.

Once operational, the OGP facility would also be subject to NPDES industrial storm water permit and site management requirements. Therefore, staff recommends the adoption of Condition of Certification **SOIL & WATER-7**, requiring the project owner to comply with all requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity, including the development and implementation of an Industrial Facility SWPPP. Staff finds that compliance with the NPDES industrial storm water permit conditions, implementation of an approved DESCP for both construction and operation phases (per **SOIL & WATER-3**), and compliance with the San Diego County watershed protection ordinance requirements, including

requirements for design and sizing of detention basins and diversion canals (per **SOIL & WATER-5**) would ensure that any project operation-related storm water impacts are less than significant.

## **Water Resources and Supply**

### ***Recycled Water Use***

The OGP proposes to use tertiary-treated recycled water for evaporative cooling of the CTG inlet air chiller system. Under maximum design conditions the total volume of recycled water to be used by the project would be 38.7 AFY. This assumes the facility operates both CTGs for 3,200 hours annually under summer conditions. However, the facility is expected to operate at less than half (23-46%) of the facility maximum annual capacity, probably only 2-8 hours per day on the days that the facility operates (OGE 2008a, page 2-7). Expected water use was therefore calculated based on requirements for two CTGs operating at summer conditions for a total of only 1,000 hours annually. Under expected use conditions, project recycled water use would be 12.1 AFY. (See **Soil and Water Table 4** for projected recycled water use volumes.) The project has an agreement with FPUd for the supply of no less than 45 AFY of recycled water for the project for approximately twenty-five years. (OGE 2008a, Appendix 6.5-G.1), which would be more than adequate for the project's chiller system evaporative cooling supply needs. [In addition, staff notes that the 45 AFY recycled water agreement could also provide a sufficient volume of recycled water to accommodate the 6.1 AFY of water needed to operate the turbine's SPRINT intercooling element under expected use conditions.]

Staff notes that use of recycled water by the project must also comply with all applicable provisions of the Health and Safety Code, and Titles 17 and 22 of the California Code of Regulations (CCR) pertaining to recycled water. These LORS include requirements for backflow prevention and cross connections of potable and non-potable water lines, recycled water piping and signage standards, and submittal of water supply and distribution system designs and an engineer's report on the use of recycled water by the project to the California Department of Public Health (CDPH). To ensure compliance with recycled water use LORS, staff proposes Condition of Certification **SOIL & WATER-8**, requiring compliance with the Title 17 and 22 CCR provisions for use of recycled water and submittal of designs and reports to both CDPH and the CPM.

Given the adequacy and availability of recycled water supplies, staff finds that use of recycled water by the project would not cause a significant adverse impact on water resources or water quality as long as proposed Condition of Certification **SOIL & WATER-8** is implemented.

### ***Potable Water Use***

The OGP proposes to use potable water for the facility demineralizer system (supplying demineralized water for turbine NOx, SPRINT injection, and water wash), as well as the non-turbine water requirements for fire protection water, sanitary system uses, and landscape watering. Under maximum design conditions the total volume of potable water to be used by project would be 62 AFY. As noted in the recycled water discussion above, this maximum case assumes full capacity facility operation. However, the facility

is expected to operate at less than half (23-46%) of the facility maximum annual capacity. Under expected use conditions, project potable water use would only be 21.1 AFY. (See **Soil and Water Table 3** for projected potable water use volumes.) The project has an agreement with FPUD for the supply of up to 62 AFY of potable water for approximately twenty-five years (OGE 2008c, Exhibit F). This volume of potable water would be more than adequate for the project's expected potable water needs. However, while the 21.1 AFY of potable water expected to be used by OGP is a reasonably small volume and would likely not create a significant adverse impact on water resources; staff has concerns about operation and management of the non-turbine potable water use facility elements in the event that potable water supplies are not available.

Staff notes that the project's potable water agreement with FPUD contains a clause that allows the FPUD to provide recycled water in lieu of potable water in the event of a drought, water supply shortage, or water emergency. Section No. 5 of the Potable Water Agreement Covenants is titled Drought, Water Supply Shortage, Water Emergency and Incremental Recycled Water Reservation and establishes the following condition:

"In the event a drought, a water supply shortage or a water emergency [as determined by the District in its reasonable discretion] limits the District's ability to deliver potable water, the District may prohibit access to the potable water Point of Delivery. At any time that the District prohibits annexations to the District due to water supply concerns, the District will prohibit access to the potable water Point of Delivery. The District shall notify Orange Grove of any restrictions at least 24 hours in advance of their taking effect. For every day or partial day that the District restricts potable water access, Orange Grove shall receive an incremental increase in the reservation of tertiary treated recycled water under its Recycled Water Supply Agreement. The incremental increase in the reservation of tertiary treated recycled water shall be 62 acre-feet less the amount of potable water that has already been delivered in a calendar year."

On June 4, 2008, California Governor Schwarzenegger proclaimed a condition of statewide drought and encouraged local water districts to take actions to reduce water consumption locally. On July 2, 2008, the FPUD issued a press release notifying the Fallbrook community and FPUD customers that the district had updated its drought plan to have four levels of action (revised down from the six levels used in the previous plan) and reinforced that the district is currently in a level-one conservation alert, known as a "drought watch". At this drought plan level, the district is asking for a voluntary 10% cut back in water use by its customers and states that it will not consider any new annexations into the district's service area. Higher levels of the drought plan would require increasingly more rigorous water use restrictions and limitations.

Considering that the FPUD will not consider new annexations under the level-one drought plan status, and that under the potable water agreement OGP will not have access to potable water whenever the district prohibits annexations, staff believes that there is a reasonable possibility that, at some point during its operational life, the OGP will not have access to potable water and will instead have to use recycled water for all

project water needs, including the non-turbine potable water uses identified for fire protection, safety washes, sanitary uses, and irrigation, possibly for an extended period of time. Staff notes that FPUD has sufficient recycled water to replace all of the potable water needed for the OGP and has agreed to increase the project's recycled water reservation as necessary. The applicant has also stated that they can operate the facility on recycled water for a limited time (see Water Supply Backup section below). However, it is not clear whether or not the use of recycled water in lieu of potable water for the non-turbine potable water uses (i.e., fire protection water, safety showers and eye wash, sanitary system uses, and landscape watering) would be consistent with existing LORS under the existing project design parameters. Therefore, staff proposes Condition of Certification **SOIL & WATER-9** requiring the applicant to ensure that project use of recycled water in lieu of potable water for landscaping, fire protection, facility washdown, safety showers/eye wash, and sanitary systems will comply with all applicable LORS, and identify what operational changes would be necessary if recycled water is used in the raw water storage tank in the event of an interruption in potable water availability.

Implementation of **SOIL & WATER-9** would help ensure that all non-turbine potable water use systems are capable of operating with recycled water in compliance with LORS in the event that potable water supplies are interrupted and recycled water is used in lieu of potable water.

In addition, in considering total project operation water use, staff proposes Condition of Certification **SOIL & WATER-10**, requiring metering and reporting of project water use. This condition would track project water use, help ensure that project water use would not exceed volumes evaluated by the Energy Commission, and also help identify in advance potential water use concerns (such as water supply interruptions or facility equipment considerations) that may require evaluation and/or changes to project certification.

In conclusion, staff believes that with adoption and implementation of Conditions of Certification **SOIL & WATER- 8, 9, and 10**, as described above, project operation water use would have a less than significant impact on water resources and water quality.

### **Water Supply Back Up**

As proposed, backup for the project's potable water supply would initially be provided by water stored onsite. If potable water deliveries were temporarily interrupted, the facility could still continue to operate at full load for approximately four (4) 12-hour operating days using water stored in the raw water and demineralized water storage tanks (assuming the tank are full and excluding water reserved for fire protection). In addition, water from the recycled water tank could be pumped into the raw water tank to provide an additional 39 hours of operation from the recycled water stored onsite. The project could then continue to operate on recycled water, if necessary, but only for a limited time (OGE 2008n). [As noted previously, if potable water from FPUD is not available for any reason, the project's potable water agreement allows FPUD to provide reclaimed water in lieu of potable water.]

If only the reclaimed water supply is temporarily interrupted and potable water deliveries are still available, water stored in the reclaimed water tank would allow for operation of

the chiller cooling towers at full load for five 12-hour operating days. In the event that the reclaimed water supply is not available at all (in response to plant upset or delivery disruption), the facility could still operate indefinitely at 87.5% of full load (approximately 84 MW) without using water for the inlet air chiller cooling element.

In the event that both potable and reclaimed water supplies are interrupted, onsite water storage would allow for 51 hours of facility operation under summer design conditions, assuming the water tanks are full (and excluding water reserved in the tanks for fire protection). At 60% tank capacity, the facility would still be able to operate at full load for 30 hours under summer design conditions. According to SDG&E experience, most peaking plants in the service area only run between 2 and 8 hours on days they operate. Therefore, the OGP could potentially operate without offsite water deliveries for between 4 and 15 days, assuming both onsite water tanks are at least 60% full. (OGE 2008a)

Staff believes that the backup water supply scenarios presented above would adequately address short-term interruptions in water deliveries and would have less than significant impact on water resources as long as proposed Condition of Certification **SOIL & WATER-9** is adopted to address potential replacement of potable water supplies with recycled water for non-turbine facility operation uses.

## **Wastewater**

Project sanitary wastes/wastewater would be generated from domestic drains and two restrooms located in the facility's Service Building. A public sewer system is currently not available in the project area, so these wastes would be discharged to an onsite sanitary waste septic system comprised of a septic tank and leach field (OGE 2008a, Appendix 6.5-H). The onsite septic system would be sized to accommodate six employees and would be designed in accordance with San Diego County Onsite Wastewater Treatment System (OWTS) Ordinance requirements (OGE 2008a, Appendix 6.5-H). The county OWTS requirements address system sizing, design, and layout according to site characteristics, and include provisions for inspection of the system prior to backfilling. To ensure that all project septic system elements are constructed and operated in compliance with the San Diego County OWTS Ordinance, staff propose Condition of Certification **SOIL & WATER-11** requiring the project owner to submit to the San Diego County Department of Environmental Health all documents, reports, and fees necessary for compliance with the county OWTS ordinance.

Plant process wastewater (such as blowdown from the chiller system and chiller coil condensate) would be collected and recycled onsite using an RO system. The clean water produced by the RO system (RO permeate) would be piped into the recycled water storage tank and the RO concentrate would be piped into the raw water storage tank. Without use of the RO system, the project would generate about 8.3 gpm or 133,000 gallons per month of process wastewater. Use of the RO system to recycle process wastewater would reduce facility wastewater generation to only about 320 gallons per month of oily wastewater from drains in the turbine and gas compressor areas and service building floor. This wastewater would be collected, temporarily stored onsite, and then transported offsite for appropriate treatment, reuse and/or disposal. To ensure proper management, transport and disposal of the oily wastewater, staff proposes Condition of Certification **SOIL & WATER-12** requiring the project owner to



properly classify the wastewater to determine proper management and disposal requirements and provide documentation that the wastewater was transported and disposed in compliance with all applicable LORS.

With implementation of Conditions of Certification **SOIL & WATER-11** and **12**, staff concludes that the generation, management and disposal of OGP operation wastewaters would have a less than significant impact on the environment.

## **CUMULATIVE IMPACTS**

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A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects [CCR 2008, §15065(A)(3)]. Cumulative impacts can result from actions taking place over time in the same area that are minor when taken individually, but are collectively significant. In addition to the proposed OGP, the most closely related existing or planned projects in the area are the Gregory Canyon Landfill expansion and Rosemary's Mountain Quarry. The landfill expansion will use reclaimed water obtained from the Olivenhain Municipal Water District and ground water pumped onsite. The quarry project will also use ground water. Because of the OGP will not use groundwater and will obtain its recycled water from the FPUD, no water resource cumulative impacts are anticipated from OGP construction and operation.

Construction and operation of the proposed OGP would result in both temporary and permanent changes at the project site. These changes could incrementally increase local soil erosion and storm water runoff. However, potential project-related soil or storm water impacts would be reduced to a level of insignificance through implementation of the applicant's proposed mitigation measures/BMPs and project DESC; implementation of the SWPPPs for the Construction and Industrial Activities NPDES permits; and compliance with all applicable erosion and storm water management LORS. The supply of recycled water from FPUD is sufficient to meet the needs of the OGP and other existing or potential users. In addition, the existing potable water supply would be adequate to meet both the potable water needs of the OGP and other uses in the area. As noted above, if necessary, FPUD will replace project potable water supplies with reclaimed water in the event of potable water shortages.

Therefore, staff finds that construction and operation of the OGP would not result in cumulative impact to soil and water resources.

## **COMPLIANCE WITH LORS**

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The Energy Commission's power plant certification process requires staff to review each of the proposed project's elements for compliance with LORS and policies. Staff has reviewed the project elements and concludes that the proposed OGP would comply with all applicable LORS addressing protection of water resources, storm water management, and erosion control, as well as drinking water and wastewater discharge

requirements, as long as staff's proposed conditions of certification are adopted and implemented. Summary discussions of project compliance with significant LORS and policies are provided below.

## **CLEAN WATER ACT**

Staff has determined that the OGP would satisfy the requirements of the Clean Water Act with the implementation of Conditions of Certification **SOIL & WATER-2** and **7**, which require compliance with the requirements of the NPDES permits and the development and implementation of a SWPPP for both construction and industrial activities.

## **PORTER-COLOGNE WATER QUALITY CONTROL ACT**

Staff has concluded that the OGP would satisfy the applicable requirements of the Porter-Cologne Water Quality Control Act and adequately protect the beneficial uses of waters of the state through all of the following: implementation of federal, state, and local requirements for management of storm water discharges and pollution prevention; adherence with state recycled water use requirements; compliance with local grading and erosion control requirements; and compliance with local onsite wastewater treatment system (septic system) requirements.

## **SWRCB POLICY 75-58 AND ENERGY COMMISSION—*INTEGRATED ENERGY POLICY REPORT (IEPR)*-POWER PLANT WATER USE AND WASTEWATER DISCHARGE POLICY**

SWRCB Policy 75-58 states that fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. In accordance with the water conservation provisions established in the California State Constitution and SWRCB Resolution 75-58, the Energy Commission established a water source and use policy in its 2003 *Integrated Energy Policy Report (IEPR)*, stating that “the Energy Commission will approve the use of fresh water for cooling purposes by power plants which it licenses only where alternative water supply sources and alternative cooling technologies are shown to be ‘environmentally undesirable’ or ‘economically unsound.’”

The OGP proposes to use recycled water for the project's cooling tower evaporative cooling needs. While the cooling tower recycled water use is fully consistent with the Energy Commission water policy, the project also proposes to use approximately 6 to 18 AFY of potable water for CTG water spray intercooling (SPRINT) that is integrated into the GE LM6000PC SPRINT generator. Staff considers the SPRINT technology water use to be cooling because it uses water to cool the temperature of the generator compressor to increase output of the unit during warm or hot weather. In this case, in addition to cooled inlet air, water is also used to lower the temperature in the engine's compressor to increase the efficiency of generator operation.

However, given the project's proposed use of recycled water for the major portion of its cooling water needs and the relatively small volume of potable water to be used for SPRINT intercooling, staff would consider the project to be substantially in compliance with the intent of the Energy Commission water use policy with project implementation of facility-specific water conservation measures and development and implementation of

a regional water conservation program that would conserve a volume of potable water equivalent to the volume used by the project for SPRINT intercooling. Staff, therefore, recommends adoption of Condition of Certification **SOIL & WATER-13** requiring the project to: 1) implement water conservation measures to the extent practicable for all facility operation water uses in compliance with applicable FPUD water conservation programs and requirements; and 2) participate as a partner in an appropriate San Diego County Water Authority (SDCWA) water conservation program (such as the High-Efficiency Clothes Washer Incentive Program or the CII Voucher Program) and provide funding to the program in an amount sufficient to support conservation of a volume of potable water equivalent to the volume of potable water annually used for project SPRINT intercooling.

In addition, the Energy Commission's water policy also seeks to protect water resources from power plant wastewater discharges. To that end, the water policy specifies that the Energy Commission will require zero liquid discharge technologies [for management of power plant wastewaters] unless such technologies are shown to be 'environmentally undesirable' or 'economically unsound.' The OGP proposes to use an RO system to recycle process wastewater for reuse onsite. This treatment and reuse of the process wastewaters onsite will eliminate more than 99% of the facility's industrial wastewater, leaving only a little over 300 gallons of wastewater that would require offsite disposal. Therefore, staff finds that the proposed RO treatment and reuse onsite of facility process wastewaters would be substantially in compliance with the intent of the water policy because it eliminates the major portion of process wastewater discharge from the facility.

## **RESPONSE TO AGENCY AND PUBLIC COMMENTS**

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Comments related to water use and water quality impacts associated with the proposed Orange Grove project were received from the San Diego RWQCB (SDRWQCB 2008a) and the Rainbow Municipal Water District (RMWD 2008a). Summaries of the comments and staff responses to comments are provided below.

### **SAN DIEGO RWQCB**

The San Diego RWQCB reviewed the project AFC for impacts to surface water quality and made the following comments and suggestions.

#### **Comment #1: Permits**

It was noted that the project may require permits from the RWQCB if the project discharges wastes or storm water.

**Response #1:** While a CWA section 401 certification or WDRs would not be required for project activities (see the Construction Impacts – Surface Waters and Hydrology section of this assessment for more information), enrollment under the General NPDES Storm Water Permits for Construction and Industrial Activities would be required by Conditions of Certification **SOIL & WATER-2 and 7**. In addition, since the project will not discharge non-storm water wastewater into waters of the United States, a site-specific NPDES permit would not be required.

**Comment #2: Project Design**

The RWQCB suggested incorporation of the following design features:

- Runoff from parking lots, roof, or other impervious surfaces should be directed to the immediate landscape or directed to retention basins, etc, prior to entering the storm drain;
- Landscaping that requires little or no irrigation should be used and landscaping should be recessed to create retention basins/areas to capture runoff;
- The amount of area covered by impervious surfaces should be reduced through use of permeable pavement or other pervious surfaces; and
- Natural drainages and pre-project hydrograph for the area should be maintained.

**Response #2:** Features consistent with the RWQCB comments have been incorporated into the design of the OGP. Please see the Operation Impacts section of this assessment and the project AFC for more information.

**Comment #3: SUSMP Requirements**

The project should comply with the local Standard Urban Storm Water Mitigation Plan (SUSMP) and other requirements of the Municipal Storm Water Permit (R9-2007-001).

**Response #3:** Proposed Condition of Certification **SOIL & WATER-5** specifically requires project compliance with the San Diego County Watershed Protection Ordinance, which includes requirements consistent with the provisions of the SUSMP and Municipal Storm Water Permit.

**Comment #4: Construction Requirements**

- A. The project AFC should list sediment and erosion control BMPs to be used during construction and confirm that these BMPs will be implemented.
- B. The project must be enrolled under the SWRCB General NPDES construction storm water permit.
- C. The project AFC should confirm that the SWPPP required by the SWRCB construction storm water permit will be developed and implemented during construction.
- D. The project AFC should include a frac-out contingency plan for the proposed horizontal directional drilling.

**Response #4:** The project AFC includes a list of proposed BMPs in the draft DESCP submitted in response to Data Request #57 (TRC 2008e) and also includes a draft frac-out plan as an attachment to the Streambed Alteration Agreement (TRC 2008i). In addition, proposed Conditions of Certification **SOIL & WATER-2 and 3** require both project enrollment under the General NPDES Construction Storm Water Permit and development and implementation of the construction SWPPP and a DESCP addressing BMPs.

**Comment #5: Water Course Alterations**

- A. A CWA section 401 certification is also required by an applicant for a federal license or permit to conduct activities that may result in discharge into a water of the United States.
- B. If water courses are to be altered in any way, the project must perform a wetland delineation in accordance with the USACE requirements and obtain a Jurisdictional Determination from the USACE.
- C. For projects that propose alterations or impacts to non-federal waters of the state, the discharger should apply for individual or general WDRs, or a WDR waiver, from the SDRWQCB.
- D. The project should avoid all impacts to water courses, minimize impacts that cannot be avoided, and mitigate for any remaining impacts in accordance with the State's "No-Net-Loss" wetlands conservation policy (Executive Order W-59-93).

**Response #5:** See Response #1 above and the Construction Impacts – Surface Waters and Hydrology section of this assessment for a discussion and information addressing these comments.

**Comment #6: Discharges to Impaired Water Bodies**

If the project is tributary to a CWA section 303(d)-listed impaired water body, the project should implement BMPs to ensure compliance with the impaired water body's total maximum daily load for identified pollutants.

**Response #6:** Project storm water would be tributary to the San Luis Rey River, which is listed as a CWA section 303(d) impaired water body for chloride and TDS. Total maximum daily loads (TMDLs) for chloride and TDS for the river have not yet been established. However, the project will implement BMPs in accordance with all applicable storm water discharge requirements for the project area.

**RAINBOW MUNICIPAL WATER DISTRICT (RMWD)**

**Comment:** RMWD stated that staff from the proposed project has been working with RMWD for approximately one year to try and secure a permanent water supply for the power plant; however, the plant is located in a remote area that is several miles from the closest RMWD water main. They considered alternative ways to supply water to the project, including trucking, but the RMWD regulations prohibit the permanent use of water on a parcel other than where the water is purchased. The RMWD says that Orange Grove staff has assured them that they still desire a permanent water connection to the facility. Therefore, RMWD holds a neutral position to the water purchase agreements between FPU and Orange Grove Energy if they are considered an interim arrangement. However, if the water trucking is to be considered a permanent plan, then RMWD is opposed to the water agreements because RMWD considers them contrary to the RMWD rules and regulations and counter to the rights of the residents in the District to have a voice in the decision-making process. RMWD suggests that the Energy Commission consider the proposal to truck water with the stipulation that

trucking only be allowed for a short-term, preferably three years or less, in order to allow Orange Grove Energy adequate time to design and construct a water line [for RWMD service] to the project.

**Response:** Energy Commission staff acknowledges the efforts of both the applicant and the RMWD to identify a viable and economical way for the project to permanently connect to a RMWD potable water supply line. Unfortunately, the environmental, economic, and land use/right-of-way elements needed to evaluate a potential potable water connection in the short-term are not available for consideration at this time. However, staff supports continued discussions between the applicant and RMWD to address this issue. Staff also recommends that, if the OGP is certified, the applicant should submit a request to amend the project to allow a change in the source of potable water if and when a viable plan for project connection to RMWD potable water service is identified.

## CONCLUSIONS

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Construction and operation of the proposed OGP would result in both temporary and permanent impacts to soil and water resources in the area. However, potentially significant impacts would be avoided or mitigated to a less than significant level through the implementation of various erosion and storm water control plans during construction and operation of the project, as well as compliance with applicable LORS and conditions of certification for activities that could otherwise cause soil erosion, contamination of surface or ground water, or impacts to water supplies.

- Potential adverse impacts caused by soil erosion and storm water flows during construction and operation of the OGP would be mitigated by implementation of BMPs in accordance with the required federal Construction and Industrial Activity SWPPPs; the county SWMP; and the DESCP, as proposed in Conditions of Certification **SOIL & WATER-2, 3, 5 and 7**.
- The main project facility would be constructed outside the designated 100-year floodplain and would not exacerbate flood conditions in the vicinity of the project. In addition, while sections of the gas pipeline would be located within the 100-year floodplain, the underground gas pipeline and associated metering station would not impede or redirect flood flows or exacerbate flood conditions in the area.
- The OGP's proposed water use would not result in significant adverse impacts on water resources and water quality with adoption of staff's proposed Conditions of Certification **SOIL & WATER-6, 8, 9, 10, and 13**.
- Potential impacts to surface or groundwater quality from industrial or sanitary wastewaters generated by the OGP would be mitigated to a less than significant level through reuse onsite of industrial process wastewaters, proper management and disposal of oily wastewaters not suitable for reuse, and compliance with established septic system construction and use requirements.
- The proposed project would comply with applicable federal, state, and local laws, ordinances, regulations, and standards with adoption and implementation of staff's proposed conditions of certification.

- The OGP would not result in any unmitigated cumulatively significant adverse impacts to soil or water resources with adoption of staff's proposed conditions of certification.

## PROPOSED CONDITIONS OF CERTIFICATION

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At this time staff recommends adoption and implementation of the following conditions of certification.

**SOIL & WATER-1:** Prior to the start of project site mobilization and construction, the project owner shall submit documentation confirming that 1) all elements of the San Diego Gas and Electric Company (SDG&E) storage area septic system have been identified and clearly located; 2) that the storage area septic tank has been properly abandoned by SDG&E if it will no longer be used; and 3) that all areas overlying the storage area septic system are flagged and blocked off where construction activities may present safety issues or damage septic system elements. Project construction shall not proceed until the required septic system documentation is provided and the Compliance Project Manager (CPM) gives approval to start construction.

**Verification:** Not later than 10 days prior to the start of site construction, the project owner shall submit to the CPM all of the following: 1) maps and diagrams clearly showing the location of the SDG&E storage area septic system; 2) documentation from SDG&E that the storage area septic system has been properly abandoned in accordance with county requirements if SDG&E no longer plans to use the system; and 3) pictures and diagrams clearly showing the areas to be flagged and blocked off from construction activities for safety reasons or to prevent damage to septic system elements. Project construction shall not proceed until the required septic system documentation is provided and the CPM gives approval to start construction.

**SOIL & WATER-2:** The project owner shall comply with the requirements of the general National Pollutant Discharge Elimination System (NPDES) permit for discharge of storm water associated with construction activity. The project owner shall submit copies of all correspondence between the project owner and the State Water Resources Control Board (SWRCB) or the San Diego Regional Water Quality Control Board (RWQCB) regarding this permit to the CPM. The project owner shall also develop and implement a construction Storm Water Pollution Prevention Plan (SWPPP) for construction on the main Orange Grove Project (OGP) site and all laydown areas.

**Verification:** The project owner shall submit a copy of the construction SWPPP to the CPM at least 10 days prior to site mobilization for review and approval, and retain a copy of the approved SWPPP on site throughout construction. The project owner shall submit copies of all correspondence between the project owner and the SWRCB or the San Diego RWQCB regarding the NPDES permit for the discharge of storm water associated with construction activity to the CPM within 10 days of its receipt or submittal. Copies of correspondence shall include the Notice of Intent sent to the SWRCB, the confirmation letter indicating receipt and acceptance of the Notice of Intent, any permit modifications or changes, and completion/permit Notice of Termination.

**SOIL & WATER-3:** Prior to the start of site mobilization activities for project construction, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion, and Sediment Control Plan (DESCP). The DESCP must ensure proper protection of water quality and soil resources; demonstrate no increase in off-site flooding potential; include provisions for sediment and storm water retention as necessary to meet San Diego County and RWCQB requirements; and identify all appropriate monitoring and maintenance activities. The DESCP shall contain elements 1 through 9 below, outlining site management activities and erosion- and sediment-control Best Management Practices (BMPs) to be implemented during site mobilization, excavation, construction, and post-construction (operating) activities.

1. Vicinity Map – A map(s) at a minimum scale 1"=100' shall be provided and shall indicate the location of all project elements (construction site, laydown area, pipelines) with depictions of all significant geographic features including storm drains and sensitive areas.
2. Site Delineation – All areas subject to soil disturbance for the OGP (project site, laydown areas, linear facilities, landscaping areas, and any other project elements) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
3. Watercourses and Critical Areas Map – The DESCP shall show the location of all nearby watercourses including intermittent drainages and drainage ditches. It shall indicate the proximity of those features to the main OGP site and construction laydown areas, and proposed landscape areas.
4. Drainage Map – The DESCP shall provide a topographic site map(s) at a minimum scale 1"=100' showing existing, interim, and proposed drainage swales and drainage systems and drainage-area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off-site for a minimum distance of 100 feet.
5. Drainage of Project Site Narrative – The DESCP shall include a narrative of the drainage measures, including BMPs, that would be used to protect the site and downstream facilities. The narrative shall include the summary pages from the hydraulic analysis prepared by a professional engineer and erosion control specialist. The narrative shall state in acres the watershed size(s) that was used in the calculation of drainage features. The hydraulic analysis shall be used to support the selection of BMPs and structural controls to divert off-site and on-site drainage around or through the OGP site, and laydown area(s).
6. Clearing and Grading Graphics/Plans – The DESCP shall provide a delineation of all areas to be cleared of vegetation as well as areas where existing vegetation will be retained. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by



contours, cross sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography shall be illustrated tying in proposed contours with existing topography.

7. Clearing and Grading Narrative – The DESCPC shall include a table indicating the quantities of material to be excavated or filled on the OGP facility site and all off-site locations (laydown areas, transmission and pipeline corridors, roadways, and bridges) whether such excavation or fill is temporary or permanent; and the amount of material, if any, to be imported or exported. Identify the location of disposal or source for cut or fill material if quantities would not be balanced on-site.
8. Best Management Practices Plot Map – The DESCPC shall identify the location of the site-specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization) on the topographic site map(s). BMPs shall include measures designed to prevent wind and water erosion.
9. Best Management Practices Narrative – The DESCPC shall describe the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading and during all project element excavations and construction, final grading/stabilization, and post-construction. Separate BMP implementation schedules shall be provided for each project element for each phase of construction. The maintenance schedule shall also include a draft post-construction maintenance schedule for structural-control BMPs, with a final post-construction schedule for structural-control BMPs provided to the CPM prior to the start of operations.

**Verification:** At least 90 days prior to start of site mobilization for project construction activities, the project owner shall submit a copy of the DESCPC to the county of San Diego and the San Diego RWQCB for review and comment. At least 60 days prior to start of site mobilization, the project owner shall submit the DESCPC, along with any comments received from the county and the San Diego RWQCB, to the CPM for review and approval. The CPM shall consider all comments by the county and RWQCB prior to approving the DESCPC. The DESCPC shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1**, and relevant portions of the DESCPC shall clearly show approval by the chief building official. The project owner shall provide a narrative on the effectiveness of the drainage, erosion, and sediment-control measures and the results of monitoring and maintenance activities in the monthly compliance report. Once operational, the project owner shall update and maintain the DESCPC for the life of the project and shall provide information on the results of monitoring and maintenance activities in the annual compliance report and updates on compliance with the San Diego County Watershed Protection Ordinance as required by **SOIL & WATER-5** and the Industrial NPDES storm water permit as required by **SOIL & WATER-7**. The DESCPC may be jointly developed with the SWPPPs required for compliance with NPDES storm water management permit requirements, but must be clearly identified as the project DESCPC and contain all elements as specified in this condition.

**SOIL & WATER-4:** Prior to site mobilization and construction, the project owner shall submit a grading packet to the county of San Diego containing all documentation, plans, and fees normally required for the county's grading permit, with copies to the CPM. Project mobilization and construction shall not proceed until the county of San Diego issues an approval document, equivalent to the county's grading permit, and the CPM provides written concurrence.

**Verification:** At least 90 days prior to the start of site mobilization, the project owner shall submit a grading packet to the San Diego County Department of Public Works containing all documentation, plans, and fees normally required for the county's grading permit. Copies of all documents and information submitted by the project owner to the city, and any correspondence and permitting document(s) or approvals received by the project owner, shall be provided to the CPM within 10 days of submittal or receipt by the project owner. All grading plan and permit equivalent requirements or recommendations shall be consistent with the project DESCP and the SWPPPs developed in compliance with the project conditions of certification and NPDES permits for construction and industrial activities. Project mobilization and construction shall not proceed until the required San Diego County grading permit equivalent document is issued by the county and the CPM provides written concurrence.

**SOIL & WATER-5:** The project owner shall comply with all applicable requirements of the San Diego County Watershed Protection, Storm Water Management and Discharge Control Ordinance, including development, submittal, and implementation of a Storm Water Management Plan (SWMP), as necessary. The project owner shall provide a copy of the required SWMP to the CPM and notify the CPM in writing of any reported non-compliance with the county requirements, including documentation of any measures taken to correct the non-compliance and the results of those corrective measures.

**Verification:** At least 60 days prior to the start of project construction, the project owner shall submit evidence of compliance with the San Diego County storm water management requirements to the CPM, including development, submittal, and implementation of a SWMP as necessary. A copy of the SWMP, and any plan updates, shall be provided to the CPM within 10 days of submittal of the plan or plan updates to San Diego County. The CPM shall be notified by the project owner, in writing, of any reported non-compliance with the county requirements within 10 days of the event. The written notification shall include documentation of any measures taken to correct the non-compliance and the results of those corrective measures. The project owner shall submit copies of all correspondence between the project owner and the county regarding the SWMP to the CPM within 10 days of receipt or submittal.

**SOIL & WATER-6:** The project owner shall identify the source(s), volumes, and provider(s) of water used for all aspects of project construction activities (except water used for drinking water purposes). The information submitted for each water provider and source of water shall document that the water source(s) and means of procurement are consistent with all applicable water supply and water use LORS. The required documentation shall include copies

of water agreements and verification that water providers and haulers are licensed or otherwise authorized to supply the water to be used for project construction purposes.

**Verification:** At least 30 days prior to the start of project construction, the project owner shall provide to the CPM an initial list of water providers and sources of water to be used for project construction activities, along with documentation that the volumes, sources, and methods of water procurement are consistent with all applicable water supply and water use LORS. The required documentation shall also include copies of water agreements and verification that the water providers and haulers used are licensed or otherwise authorized to supply the water to be used for project construction purposes. The project owner shall update this list monthly as necessary and submit the updates with the project monthly compliance reports.

**SOIL & WATER-7:** The project owner shall comply with the requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity, including development of an Industrial Facility SWPPP.

**Verification:** The project owner shall submit a copy of the Industrial Facility SWPPP for operation of the OGP to the CPM at least 60 days prior to the start of commercial operation and shall retain a copy of the approved SWPPP on site throughout the life of the project. The project owner shall submit copies of all correspondence between the project owner and the San Diego RWQCB regarding the general NPDES permit for discharge of storm water associated with industrial activity to the CPM within 10 days of its receipt or submittal. Copies of correspondence shall include the Notice of Intent sent by the project owner to the SWRCB, the confirmation letter indicating receipt and acceptance of the Notice of Intent, and any permit modifications or changes.

**SOIL & WATER-8:** The OGP shall comply with all recycled water use requirements established in Title 22 and Title 17 of the California Code of Regulations (CCR) and any applicable local recycled water use ordinances. Prior to delivery of recycled water to the OGP for any purpose, the project owner shall submit a Title 22 Engineer's Report, along with copies of any review comments on the report from the California Department of Public Health (CDPH) and the San Diego RWQCB, for review and approval by the CPM.

**Verification:** Not less than 30 days prior to beginning any site mobilization activities, the project owner shall submit to the CPM a water supply and distribution system design, an Engineer's Report for the Production, Distribution and Use of Recycled Water (Engineer's Report), and copies of any comments on the documents from CDPH and the San Diego RWQCB for review and approval by the CPM. The water supply and distribution system design shall also be included in the final project design drawings submitted to the CPM.

The Engineer's Report shall be prepared in accordance with Title 22 and Title 17 of the California Code of Regulations, the California Health and Safety Code, and the California Water Code. The project owner shall comply with any reporting and inspection requirements set forth by the CDPH and the San Diego RWQCB to fulfill statutory requirements. The project owner shall submit copies to the CPM of all correspondence between the project owner and CDPH or the San Diego RWQCB regarding project use of recycled water within 10 days of receipt or submittal.

**SOIL & WATER-9:** Prior to the start of project construction, the project owner shall ensure that project use of recycled water in lieu of potable water for landscaping, fire protection, facility washdown, safety showers/eye wash, sanitary systems, and any other non-turbine water uses will comply with all applicable LORS, and identify what operational changes would be necessary if recycled water is used in the raw water storage tank during interruptions of potable water supplies.

**Verification:** At least 30 days prior to the start of project operation, the project owner shall submit to the CPM documentation identifying which of the five elements listed above could use recycled water in lieu of potable water without changes to project systems. For those elements that cannot use recycled water without changes to project systems or project operations, the project owner shall submit a plan to the CPM detailing how project system configurations or operations will be changed to accommodate recycled water use in the raw water storage tank, or how the project owner will provide adequate potable quality water during short-term potable water interruptions. The CPM shall review and approve the plan and the project owner shall implement the plan during short-term use of recycled water in the raw water storage tank.

**SOIL & WATER-10:** The project owner shall obtain project water supplies from FPUD in volumes not to exceed 62 AFY of potable water and 38.7 AFY of recycled water, unless other use volumes are approved by the CPM. Prior to the use of potable and recycled water for commercial operation, the project owner shall install and maintain metering devices, as part of the project water supply and distribution system, to monitor and record in gallons per day the total volumes of potable and recycled water supplied to the OGP by the FPUD. The metering devices shall be operational for the life of the project and must be able to record the volumes of water used from each type of water separately.

**Verification:** At least 60 days prior to commercial operation of the OGP, the project owner shall submit documentation to the CPM that metering devices for both the potable water supply system and the recycled water supply system have been installed and are operational. The project owner shall prepare an annual potable water and recycled water use summary giving the monthly range and monthly average of daily potable water usage and recycled water usage in gallons per day and total potable water and total recycled water used on a monthly and annual basis in acre-feet. The annual summary shall be included in the Annual Compliance Report. For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average for potable water used and recycled water used. For calculating the total water use, the term *year* will correspond to the date established for the annual compliance report submittal. If the amount of potable water and/or recycled water to be used by OGP is expected to exceed 62 and 38.7 AFY respectively, during any annual reporting period, the project owner shall provide a written request and explanation for the anticipated water use increase to the CPM at least 60 days prior to the date when the water use limit is expected to be exceeded.

**SOIL & WATER-11:** Prior to the start of project construction, the project owner shall comply with all San Diego County Onsite Wastewater Treatment System (OWTS) Ordinance requirements for construction and operation of the

project's sanitary waste septic system and leach field. Project construction shall not proceed until documentation equivalent to the county's required onsite wastewater treatment system permit is issued by the county and approved by the CPM. The project owner shall remain in compliance with the county OWTS requirements for the life of the project.

**Verification:** At least 90 days prior to the start of project construction, the project owner shall submit a sanitary waste management information packet to the San Diego County Department of Environmental Health containing all necessary documentation, plans, and fees required for the county's onsite wastewater treatment system (septic system) construction and operation permits and authorizations. Copies of all documents and information submitted by the project owner to the county, and any documentation equivalent to the county's septic system permit issued to the project owner shall be provided to the CPM within 10 days of submittal or receipt by the project owner. Project mobilization and construction shall not proceed until the required septic system permit equivalent document is issued by the county and the CPM provides written concurrence. The project owner shall remain in compliance with the county OWTS requirements for the life of the project and provide a status report on OWTS compliance in each annual compliance report.

**SOIL & WATER-12:** Prior to transport and disposal of any facility operation wastewaters that are not suitable for treatment and reuse onsite, the project owner shall test and classify the stored wastewater to determine proper management and disposal requirements. The project manager shall ensure that the wastewater is transported and disposed of in accordance with the wastewater's characteristics and classification and all applicable LORS (including any CCR Title 22 Hazardous Waste and Title 23 Waste Discharges to Land requirements).

**Verification:** Prior to initial offsite transport and disposal of facility wastewaters, the project owner shall test and classify the stored wastewater to determine proper management and disposal requirements. At least 10 days prior to offsite transport, the project manager shall submit to the CPM for review and approval a report documenting the results of the wastewater testing and classification, and identifying the volume of wastewater to be disposed, the methods of transport, and the disposal facility to be used for offsite disposal of the wastewater. After CPM approval of the initial testing and management report, and absent changes in wastestream characteristics or in the transport and disposal practices identified, the project owner shall report annually in the Annual Compliance Report the volume of facility wastewater transported and disposed of offsite and provide documentation that the wastewater was transported and disposed of in compliance with all applicable LORS.

**SOIL & WATER-13:** The project owner shall: 1) submit a facility water conservation plan to the CPM for review and approval; 2) implement water conservation measures to the extent practicable for all facility operation water uses in compliance with applicable FPUd water conservation programs and requirements; and 3) participate as a partner in an appropriate San Diego County Water Authority (SDCWA) water conservation program (such as the High-Efficiency Clothes Washer Incentive Program or the CII Voucher Program ) and provide funding to the program in an amount sufficient to

support conservation of a volume of potable water equivalent to the volume of potable water annually used for project SPRINT intercooling.

**Verification:** At least 30 days prior to the start of facility operation, the project owner shall do all of the following:

1. Submit to the CPM a facility water conservation plan addressing all facility operation water uses. The plan shall identify all water conservation measures to be implemented by the facility, including a schedule for implementation and maintenance of the measures and a narrative description of how the project will modify measures as necessary to accommodate local water conditions. After review and approval by the CPM, the project owner shall implement the water conservation plan for the life of the project. The project owner shall report annually on the status of facility conservation, revise the conservation plan as necessary to address local conditions, and submit plan revisions to the CPM for review and approval.
2. Submit to the CPM for review and approval a plan identifying an appropriate SDCWA water conservation project and how the project owner will participate in and fund the program as necessary to annually conserve a volume of potable water equivalent to the facility's potable water use for SPRINT intercooling. The plan shall clearly document how the project will achieve and document the desired goal of annually conserving a volume of potable water equivalent to the facility's SPRINT potable water consumption. Upon CPM approval, the project owner shall implement the required water conservation project plan.

## REFERENCES

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CCR 2008. California Environmental Quality Act (CEQA) Guidelines. Title 14, California Code of Regulations, section 15000 and the following (Cal. Code Regs., tit. 14, §15000 et seq.).

CEC 2008k – CEC/F. Miller (tn: 47449) Data Requests 1-73, Set #1 dated 8/5/08. Submitted to Dockets 8/5/08.

CEC 2008n – CEC/F. Miller (tn: 48502) Report of Conversation dated 10/8/08 with F. Miller/J. Babula and J. Stenger and M. Jones to discuss project engineering. Submitted to Dockets 10/9/08.

CEC 2008q – CEC/C. Closson (tn: 48705) Report of Conversation dated 10/3/08 with C. Closson/M. Porter to permits for horizontal directional drilling. Submitted to Dockets 10/22/08.

DFG 2008a – E. Pert to F. Miller (tn: 48020) DFG comments on AFC dated 9/17/08. Submitted to Dockets 9/18/08.

DTSC 2008A – A. Shami (tn: 47892) DTSC response to OG AFC dated 8/27/08. Submitted to Dockets 9/3/08.

OGE 2008a – OGE/S. Thome (tn: 46770) Application for Certification Orange Grove Energy dated 6/19/08. Submitted to Dockets 6/19/08.

OGE 2008c – OGE/S. Thome (tn: 46979) Supplement to AFC dated 7/8/08. Submitted to Dockets 7/8/08.

OGE 2008d – OGE/E. Back (tn: 47644) Email from E. Back to CEC regarding L. Monarres/US COE no permit required from Corp for Section 404 waters. Submitted to Dockets 8/20/08.

RMWD 2008a – Rainbow Municipal Water District/D. Seymour (tn: 47916), Comments on Orange Grove project water use and provision of water, August 27, 2008.

RMWD 2008b – Rainbow Municipal Water District/B. Lee (tn: xxxxx), E-mail regarding RMWD provision of water for Orange Grove project construction use, September 25, 2008.

SDRWQCB 2008a – California Regional Water Quality Control Board, San Diego Region/C. Clemente (tn: 47915), Comments on Application for Certification for the Orange Grove Power Plant project, August 26, 2008.

TRC 2008a – J. Stenger (tn: 46882) Project design drawings previously submitted at a reduced scale – Appendix 2-A dated 6/26/08. Submitted to Dockets 6/26/08.

TRC 2008b – J. Stenger (tn: 46883) Phase I Environmental Site Assessment previously included in Appendix 6.14-A dated 6/26/08. Submitted to Dockets 6/26/08.

TRC 2008e – J. Stenger (tn: 47854) Data Responses 1-73 dated 8/29/08. Submitted to Dockets 8/29/08.

TRC 2008g – J. Stenger (tn: 47234) Email response to C. Closson regarding septic/water dated 9/27/08. Submitted to Dockets 9/29/08.

TRC 2008i – J. Stenger (tn: 47751) Section 1602 Streambed Alteration Agreement application submitted to the California Department of Fish and Game, dated 8/11/08.

## ACRONYMS - SOIL AND WATER RESOURCES TABLE

AF	acre-feet
AFC	Application for Certification
AFY	acre-feet per year
BMPs	Best Management Practices
CCR	California Code of Regulations
CDPH	California Department of Public Health
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	carbon monoxide
CPM	Compliance Project Manager
CTG	combustion turbine generator
CWA	Clean Water Act
CWC	California Water Code
DESCP	Drainage, Erosion, and Sediment Control Plan
ESA	Environmental Site Assessment
FPUD	Fallbrook Public Utility District
GE	General Electric
gpm	gallon(s) per minute
HDD	horizontal directional drilling
IEPR	Integrated Energy Policy Report
LORS	laws, ordinances, regulations, and standards
mg/L	milligrams per liter
MW	megawatt
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OGE	Orange Grove Energy
OGP	Orange Grove Project
OWTS	onsite wastewater treatment system
REC	Recognized Environmental Condition
RO	reverse osmosis
RUSLE	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board
SDCWA	San Diego County Water Authority
SDG&E	San Diego Gas and Electric Company
SPRINT	GE spray intercooling technology
SUSMP	Standard Urban Stormwater Mitigation Plan
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TMDL	Total Maximum Daily Load
U.S. ACE	United States Army Corp of Engineers
WDRs	Waste Discharge Requirements